



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**REGION III- OFFICE OF COMMUNICATIONS AND GOVERNMENT RELATIONS**  
1650 Arch Street Philadelphia, Pennsylvania 19103-2029  
Phone - 215/814-5100 Fax - 215/814-5102

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## EPA Environmental News

Contact: Roy Seneca (215) 814-5567  
March 12, 2002

### **EPA reaches consent agreement with DuPont on plan to supply drinking water**

**PHILADELPHIA** – The U.S. Environmental Protection Agency has finalized a consent agreement with E. I. DuPont de Nemours & Co. (DuPont), which would require the company to provide an alternate drinking water supply to residents in communities surrounding its Washington Works facility near Parkersburg, W. Va. if water supplies show high levels of Ammonium Perfluorooctanoate (or C8), an unregulated contaminant.

C8 has been used since the 1950s by DuPont in its fluoropolymer manufacturing processes at the Washington Works facility. The company has historically disposed of C8 wastes through direct discharges to the Ohio River, into three nearby landfills and by air emissions.

Levels of C8 have been identified in municipal wells in Lubeck, W. Va. and Little Hocking, Ohio, in the Ohio River, and in monitoring wells near factory discharges. This has raised concern since studies have shown C8 to be toxic to animals and persistent in humans.

“This consent agreement is a proactive approach involving the cooperation of the state and federal governments, and private industry to ensure residents a safe drinking water supply,” said Donald S. Welsh, regional administrator for EPA’s mid-Atlantic region.

In November 2001, the West Virginia Department of Environmental Protection, the West Virginia Department of Health and Human Resources, and DuPont signed an agreement that provides for the human health risk assessment of C8, groundwater and surface water monitoring, and plume identification and remediation.

(more)

To View All Press Releases: <http://www.epa.gov/region3/r3press/r3press.htm>

**EPA reaches consent agreement with Dupont – Page 2**

Under the state agreement, a "screening level" for a safe level of C8 in drinking water will be established. The EPA order sets forth procedures which DuPont must follow to provide immediate and long term safe drinking water to users of public or private water supplies in West Virginia and Ohio where C8 concentrations exceed screening levels.

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**To View All Press Releases: <http://www.epa.gov/region3/r3press/r3press.htm>**

**UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY**

**REGION III  
1650 ARCH STREET  
PHILADELPHIA, PA 19103**

**REGION V  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604**

IN THE MATTER OF:	)	
	)	ORDER ON CONSENT
	)	
E. I. du Pont de Nemours	)	
and Company, Incorporated	)	Proceeding under section 1431(a)(1)
	)	of the Safe Drinking Water Act,
	)	42 U.S.C. § 300i(a)(1)
Washington Works Facility	)	
Route 892	)	Docket Nos. SDWA-03-2002-0019,
Washington, WV 26181	)	SDWA-05-2002- <u>0002</u> .

**I. STATUTORY AUTHORITY**

1. This Order on Consent ("Order") is issued pursuant to the authority vested in the Administrator of the United States Environmental Protection Agency ("EPA") by Section 1431(a)(1) of the Safe Drinking Water Act ("SDWA"), 42 U.S.C. § 300i(a)(1).
2. The authority to issue this Order was delegated to the Regional Administrators by Delegation No. 9-17, dated May 11, 1994.
3. Under the SDWA, Congress has delegated to EPA broad authority for the protection of public water supplies and drinking water sources.

**II. DEFINITIONS**

4. The term "Underground Source of Drinking Water" ("USDW") means an "aquifer" or its portion which supplies a public water system ("PWS") or which contains a sufficient quantity of ground water to supply a PWS and which currently supplies drinking water for human consumption, or contains fewer than 10,000 milligrams per liter (mg/l) total dissolved solids, and is not an exempted aquifer. See 40 C.F.R. § 144.3.

### III. FINDINGS OF FACT AND CONCLUSIONS OF LAW

5. E. I. du Pont de Nemours and Company, Incorporated ("DuPont"), is a corporation and is therefore a "person" within the meaning of Section 1401(12) of the SDWA, 42 U.S.C. § 300f(12).

6. DuPont owns and operates a manufacturing facility, known as the Washington Works ("Facility"), located in Washington, Wood County, West Virginia.

7. Ammonium perfluorooctanoate, CAS Number 3825-26-1 (hereafter "C-8"), is a perfluorinated surfactant that DuPont has used in its fluoropolymer-related manufacturing processes at the Facility since the early 1950s.

8. Residues containing C-8 generated by the Facility are or have been released to the air, discharged to the Ohio River, disposed of at the Facility, Dry Run and Letart landfills in West Virginia ("disposal sites") and otherwise shipped off-site for destruction and/or disposal including into unlined landfills.

9. Studies performed by DuPont and Minnesota Manufacturing and Mining Corporation (a manufacturer of C-8) ("3M") have determined that C-8 in sufficient doses, i.e., considering both amount and duration of exposure, is toxic to animals through ingestion, inhalation and dermal contact. Studies have also found that C-8 is persistent in humans and the environment. EPA is conducting a preliminary hazard assessment of C-8 under the Toxic Substances Control Act ("TSCA").

10. Recently, C-8 has been detected in the underground source of drinking water used to supply the following locations, at the following levels :

Lubeck, WV, PSD:	0.8 micrograms/liter (ug/l) (1 <sup>st</sup> quarter 2000)
Facility Production Wells:	1.99 ug/l (Well 336, 1998) 1.45 ug/l (Well 332, 1999)
Facility Drinking Water Taps:	0.213 ug/l (Building 5, 1999) 0.496 ug/l (Building 293, 1999) 0.306 ug/l (Building 231, 1999) 0.135 ug/l (Building 363, 2000)
Little Hocking, OH, PWS:	1.840 ug/l (Well 1, 12/01) 3.730 ug/l (Well 2, 12/01) 0.855 ug/l (Well 3, 12/01) 7.690 ug/l (Well 5, 12/01)  1.720 ug/l (Well 1, 1/02) 2.970 ug/l (Well 2, 1/02) 0.744 ug/l (Well 3, 1/02)

6.220 ug/l (Well 5, 1/02)

11. Although recent sampling shows lower levels, groundwater data from Letart landfill has shown C-8 concentrations as high as:

On-site monitoring well MW1	24,000 ug/l (1998)
On-site monitoring well MW-2A	990 ug/l (1998)

Private wells near the Letart landfill when tested for C-8 in 2001 showed levels of 0.42 ug/l, 0.296 ug/l, and 0.085 ug/l; tap samples from the only well in the area of Letart landfill which is currently known to supply drinking water showed levels of 0.031 ug/l, 0.046 ug/l and 0.053 ug/l (duplicate sample).

12. The C-8 discharged by the Facility is a contaminant present in or is likely to enter a PWS or an USDW through the migration from air emissions, surface water discharges or from unlined landfills, and may present an imminent and substantial endangerment at levels exceeding 14 ug/l in water used for human consumption based on "A Hazard Narrative for Perfluorooctanoate (PFOA)" a final report prepared by ENVIRON International Corporation, January 24, 2002 (hereafter "ENVIRON report") for DuPont.

13. DuPont, the West Virginia Department of Environmental Protection ("WVDEP"), and the West Virginia Department of Health and Human Resources ("WVDHHR") have entered in an agreement on consent ("WV Order"), dated November 15, 2001, attached hereto, which provides for, *inter alia*, a toxicological and human health risk assessment of C-8 to be conducted under the supervision of a C-8 Assessment of Toxicity ("CAT") Team pursuant to the WV Order, as well as ground and surface water monitoring and plume identification. DuPont, in a letter dated February 11, 2002, attached hereto, also agreed to perform sampling of private and public ground water wells within a 1-mile radius of the Little Hocking, Ohio PWS well field, following the protocol established in the WV Order. (Hereafter, the sampling required by the WV Order and the additional sampling agreed to by DuPont will be referred to as "sampling in WV/OH.")

14. C-8 is currently not a contaminant for which a national primary drinking water regulation has been established pursuant to the SDWA, however, for the purpose of this Order, DuPont and EPA agree to use the level of 14 ug/l C-8, as set forth in the ENVIRON report, as the temporary threshold level for provision of alternate water as required by paragraph 17 of this Order.

15. DuPont and EPA further agree to use the screening level for C-8 to be established by the WV Order as the threshold level for the provision of alternate water required by paragraphs 18 through 23 of this Order, in lieu of the level set forth in paragraphs 12 and 14 of this Order.

16. EPA has consulted with the WVDEP, WVDHHR, the Ohio Environmental Protection Agency ("OEPA") and the Ohio Department of Health ("ODH") to confirm that the information on which this Order is based is correct and to ascertain the action that the state and local authorities are or will be taking. WVDHHR, OEPA, and ODH have requested that EPA take this action. EPA has concluded that all requisite conditions have been satisfied for EPA action under Section 1431(a)(1) of the SDWA, 42 U.S.C. § 300i(a)(1).

#### IV. ORDER ON CONSENT

Pursuant to the authority issued to the EPA Administrator by Section 1431(a)(1) of the SDWA, 42 U.S.C. § 300i(a)(1), and delegated to the Regional Administrators, DuPont is ORDERED and hereby consents to the following:

##### Provision of Alternate Drinking Water

17. As soon as practicable, but not later than fifteen (15) days following receipt of validated sampling results performed in accordance with the WV Order for sampling in WV/ OH, DuPont shall provide a temporary alternate drinking water supply for users of any private drinking water well and PWS in West Virginia or Ohio where such results show the level of C-8 exceeds 14 ug/l. A "temporary alternate drinking water supply" shall mean connection to a PWS, connection to a new water well, adequately treated water or water from some other source, including bottled water or bulk water from a tank truck that meets the water quality requirements of 40 C.F.R. § 141 and has a level of C-8 no greater than 14 ug/l; is in sufficient quantity for all reasonable domestic uses including drinking and cooking; and is provided in a manner convenient to the users. DuPont shall continue to provide this temporary alternate drinking water supply until DuPont fully implements the Alternate Drinking Water Plan pursuant to paragraphs 18 through 23 of this Order. DuPont shall be responsible for all operation and maintenance costs of the alternate drinking water supply.

18. As soon as practicable but not later than thirty (30) days after a determination by the Groundwater Investigation Steering Team ("GIST") established pursuant to the WV Order that a private drinking water well or PWS in West Virginia or Ohio contains C-8 at levels greater than the screening level developed pursuant to the WV Order, DuPont shall submit to EPA for approval, and to WVDHHR, WVDEP and OEPA, as appropriate, for review, an Alternate Drinking Water Plan which identifies all actions necessary to enable DuPont to fully comply with the requirements of paragraph 19 through 23 of this Order. The Alternate Drinking Water Plan shall include a schedule of implementation for such actions.

19. The Alternate Drinking Water Plan shall provide that:

a. DuPont shall assure the provision of an alternate supply of drinking water to all users of any PWS and any private drinking water well in West Virginia or Ohio, identified pursuant to sampling in WV/OH, where, and for so long as, the level of C-8 exceeds the screening level developed pursuant to the WV Order.

b. Such levels shall be determined by monitoring performed using a test procedure established by the GIST pursuant to the WV Order. Such alternate supply of drinking water is to be provided at no cost to the users of such PWS or private drinking water wells, except for usual service fees incurred by users of a PWS.

c. DuPont will provide notice to all users of such PWS and private drinking water wells of the availability of the alternate supply of drinking water.

d. An "alternate supply of drinking water" shall mean connection to a PWS, connection to new water well, adequately treated water or water from some other source, acceptable to EPA, that meets the water quality requirements of 40 C.F.R. § 141 and has a level of C-8 no greater than the screening level established pursuant to the WV Order; is in sufficient quantity for all reasonable domestic uses including drinking and cooking; and is provided in a manner convenient to the users. DuPont shall be responsible for all operation and maintenance costs of the alternate supply of drinking water for the duration of operation pursuant to this Order, unless the alternate supply of drinking water is provided by connection to a PWS.

20. Following the initial submittal of the Alternate Drinking Water Plan by DuPont, if EPA, in consultation with WVDHHR, WVDEP, and OEPA, as appropriate, determines that modifications are necessary to DuPont's Alternate Drinking Water Plan, DuPont shall make such modifications as EPA may specify to satisfy the requirements of this Order and submit a revised Alternate Drinking Water Plan within forty-five (45) calendar days of notification by EPA.

21. Upon EPA's approval of the Alternate Drinking Water Plan (or revised Alternate Drinking Water Plan, as the case may be), DuPont shall implement, in accordance with the approved schedule, any and all actions necessary to comply with the requirements of paragraphs 18-20.

22. Within thirty (30) calendar days of EPA's approval of the Alternate Drinking Water Plan (or revised Alternate Drinking Water Plan, as the case may be), and quarterly thereafter, DuPont shall submit to EPA, WVDHHR, WVDEP, and OEPA, written reports summarizing all actions taken in accordance with this Order ("progress reports"). DuPont shall continue to submit progress reports until such time as EPA provides written notice that the reports are no longer necessary, or this Order is terminated.

All progress reports required by this paragraph shall contain the following certification, which shall be signed by a responsible corporate officer:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

For purposes of this Order, a responsible corporate officer shall be (i) a president, secretary, treasurer, or vice-president of DuPont in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for DuPont, or (ii) the manager of the Facility, if the Facility employs more than 250 persons or has gross annual sales or

expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been delegated to the manager in accordance with corporate procedures.

23. All submittals, including reports, required under this Order shall be submitted to the following addressees:

As to EPA:

Roger Reinhart (3WP32)  
U.S. EPA Region III  
1650 Arch Street  
Philadelphia, PA 19103-2029

Kelley Moore (WG-15J)  
U.S. EPA Region V  
77 West Jackson Boulevard  
Chicago, IL 60604

As to WVDHHR:

Victor Wilford  
Division of Environmental Engineering  
Office of Environmental Health Services  
Department of Health and Human Resources  
815 Quarrier Street, Suite 418  
Charleston, WV 25301

As to WVDEP:

David Watkins  
Ground Water Protection Section  
Division of Water Resources  
West Virginia Department of Environmental Protection  
1201 Greenbrier Street  
Charleston WV 25301

As to OEPA:

Michael Baker  
Division of Drinking & Ground Waters  
Ohio Environmental Protection Agency  
122 South Front Street  
Columbus, OH 43215



## V. GENERAL PROVISIONS

24. DuPont admits the jurisdictional allegations set forth herein and waives any defenses it might have as to jurisdiction and venue and agrees not to contest any of the findings of fact or conclusions of law herein in any action to enforce this Order. Except as to any proceeding brought by EPA to enforce this Order, in agreeing to this Order DuPont makes no admission of fact or law and reserves all rights and defenses available regarding liability or responsibility in any other legal proceeding related to the subject matter of this Order.

25. This Order shall apply to and be binding upon DuPont and its agents, successors, and assigns.

26. This Order may be modified only upon written consent of all parties.

27. Nothing in this Order shall be construed as prohibiting, altering or in any way eliminating the ability of EPA to seek any other remedies or sanctions available by virtue of DuPont's violations of this Order or of the statutes and regulations upon which this Order is based or for DuPont's violation of any applicable provision of law.

28. This Order shall not relieve DuPont of its obligation to comply with all applicable provisions of federal, state or local law, nor shall it be construed to be a ruling on, or determination of, any issue related to any federal, state or local permit.

29. Nothing in this Order is intended to nor shall be construed to operate in any way to resolve any criminal liability of DuPont. Compliance with this Order shall not be a defense to any actions subsequently commenced for any violation of federal laws and regulations administered by EPA, and it is the responsibility of DuPont to comply with such laws and regulations. EPA reserves the right to undertake action against any person, including DuPont, in response to any condition which EPA determines may present an imminent and substantial endangerment to the public health, public welfare or the environment.

30. The undersigned representative of DuPont certifies that he is fully authorized by DuPont to enter into the terms and conditions of this Order and to execute and legally bind that party to it.

31. Pursuant to Section 1431(b) of the SDWA, 42 U.S.C. § 300i(b), violation of any term of this Order, or failure or refusal to comply with this Order, may subject DuPont to a civil penalty of up to \$15,000 per day per violation for each such day in which a violation occurs or failure to comply continues, as assessed by an appropriate United States District Court.

32. When DuPont knows or should have known, by the exercise of due diligence, of an event that might delay completion of any requirement of this Order, DuPont shall provide notice to EPA, in writing, within ten (10) business days after DuPont first knew, or in the exercise of due diligence, should have known, of such event. The notice shall describe in detail the basis for the delay, including whether it is a Force Majeure event, and describe the length of, precise cause(s) of, and measures to be taken to prevent or minimize such delay. If EPA agrees that such event constitutes Force Majeure, EPA shall extend the time for performance of such requirement, in

writing, to compensate for the delay caused by the Force Majeure event. DuPont's failure to notify EPA in accordance with this paragraph shall render this paragraph void and of no effect. For purposes of this Order, Force Majeure is defined as an event arising from the causes beyond the control of DuPont, and any entity controlled by DuPont, which delays or prevents the performance of any obligation under this Order. Unanticipated or increased costs or expenses associated with the implementation of this Order and changed financial circumstances, failure to apply for a required permit or approval or to provide in a timely manner all information to obtain a permit or approval or to obtain or approve contracts, shall not, in any event, constitute Force Majeure events. DuPont reserves what ever rights it may have to dispute EPA's determination that a particular event does not constitute Force Majeure in any action to enforce this Order.

33. This Order shall be effective upon execution by all parties. This Order shall remain in effect until DuPont fulfills its obligations pursuant to paragraphs 17 through 23 herein, submits a written request to EPA to terminate this Order, and EPA approves such termination request.

34. This Consent Order may be executed in any number of counterpart originals, each of which shall be deemed to constitute an original agreement, and all of which shall constitute one agreement. The execution of one counterpart by any party shall have the same force and effect as if that party had signed all other counterparts.

35. All of the terms and conditions of this Order together comprise one agreement, and each of the terms and conditions is in consideration of all of the other terms and conditions. In the event that this Order, or one or more of its terms and conditions, is held invalid, or is not executed by all of the signatories in identical form, or is not approved in such identical form by the Regional Administrators, then the entire Order shall be null and void.

SO ORDERED:

\_\_\_\_\_  
Donald S. Welsh  
Regional Administrator  
U.S. Environmental Protection Agency, Region III

Date: \_\_\_\_\_

\_\_\_\_\_  
Thomas V. Skinner  
Regional Administrator  
U.S. Environmental Protection Agency, Region V

3-7-02  
Date: \_\_\_\_\_

writing, to compensate for the delay caused by the Force Majeure event. DuPont's failure to notify EPA in accordance with this paragraph shall render this paragraph void and of no effect. For purposes of this Order, Force Majeure is defined as an event arising from the causes beyond the control of DuPont, and any entity controlled by DuPont, which delays or prevents the performance of any obligation under this Order. Unanticipated or increased costs or expenses associated with the implementation of this Order and changed financial circumstances, failure to apply for a required permit or approval or to provide in a timely manner all information to obtain a permit or approval or to obtain or approve contracts, shall not, in any event, constitute Force Majeure events. DuPont reserves what ever rights it may have to dispute EPA's determination that a particular event does not constitute Force Majeure in any action to enforce this Order.

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SO ORDERED:



Donald S. Welsh  
Regional Administrator  
U.S. Environmental Protection Agency, Region III

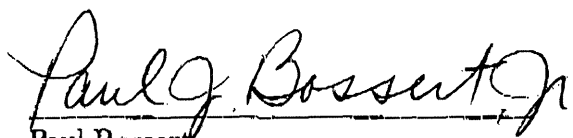
MAR 7 2002

Date: \_\_\_\_\_

\_\_\_\_\_  
Thomas V. Skinner  
Regional Administrator  
U.S. Environmental Protection Agency, Region V

Date: \_\_\_\_\_

AGREED TO:



Paul Bossert

Plant Manager, Washington Works Facility

E. I. du Pont de Nemours and Company, Incorporated

Date: March 4, 2002



DuPont  
Washington Works  
P. O. Box 1217  
Parkersburg, WV 26102-1217

February 11, 2002

Michael Baker, Chief  
Division of Drinking and Ground Waters  
Post Office Box 1049  
Columbus, OH 43216-1049

Dear Mr. Baker:

On behalf of E. I. du Pont de Nemours and Company ("DuPont") I want to thank you for meeting with us on February 1, 2002, to discuss issues related to the discovery of ammonium perfluorooctanoate (APFO, also known as C8) in the groundwater at the Little Hocking Water Association well field. We found the exchange to be very constructive.

Pursuant to our discussions at that meeting, we have raised with the West Virginia Department of Environmental Protection ("WVDEP") the possibility of representatives of the Ohio Environmental Protection Agency ("Ohio EPA") participating on the Groundwater Investigation Steering Team ("GIST"). As you know, the GIST was formed pursuant to the multi-media consent order ("MMCO") that was issued to DuPont by WVDEP and the West Virginia Department of Health and Human Resources, effective November 15, 2001. The purpose of the GIST is to oversee "an expeditious and phased approach" for the assessment of the presence and extent of C8 contamination in drinking water, groundwater and surface water at and around DuPont's Washington Works and other DuPont facilities in West Virginia. The WVDEP representatives with whom we have spoken have agreed to give consideration to our request, and we are awaiting their reply.

Regardless of the position taken by WVDEP in response to the request for participation by Ohio EPA on the GIST, DuPont is prepared to undertake voluntarily a well survey and sampling of private groundwater wells in the area of the Little Hocking Water Association well field following the protocol that has been established under the MMCO. This would include a groundwater use and well survey identifying and sampling all groundwater wells within a 1-mile radius of the well field.

We are prepared to initiate this sampling as soon as the logistics can be worked out with all appropriate governmental entities. We look forward to working with you and other representatives of Ohio EPA in this matter.

Very truly yours,

David M. Rurak  
Safety Health & Environmental Manager  
DuPont Fluoroproducts

**CERTIFICATE OF SERVICE**

I certify that on the date noted below, I delivered by hand two copies of this Order on Consent to the Regional Hearing Clerk, U.S. EPA Region III, and one copy to the addressees below as indicated:

VIA CERTIFIED MAIL  
RETURN RECEIPT  
REQUESTED

Bernard J. Reilly, Esq.  
DuPont Legal, Room D 7082  
1007 Market Street  
Wilmington, DE 19898

Paul Bossert, Plant Manager  
DuPont Washington Works Facility  
Route 892  
Washington, WV 26181

Dated: 2/11/02



Janet E. Sharke (3EC00)  
Senior Asst. Regional Counsel  
Office of Enforcement, Compliance,  
and Environmental Justice  
EPA, Region III  
1650 Arch Street  
Philadelphia, PA 19103-2029

**CONSENT ORDER ISSUED PURSUANT TO  
ARTICLES 5 and 12, CHAPTER 22 AND ARTICLE 1, CHAPTER 16  
OF THE WEST VIRGINIA CODE.**

TO: E. I. DU PONT DE NEMOURS AND COMPANY

DATE: November 14, 2001

**West Virginia Department of Environmental Protection  
West Virginia Department of Health and Human Resources**

**Order No. GWR-2001-019**

This **CONSENT ORDER** is issued by the Director of the Division of Water Resources and Director of the Division of Air Quality, West Virginia Department of Environmental Protection, and the Commissioner of the Bureau for Public Health, West Virginia Department of Health and Human Resources, pursuant to the authority set forth in more detail below.

**I. INTRODUCTION OF PARTIES.**

This Consent Order is entered into by and between the West Virginia Department of Environmental Protection [WVDEP], the West Virginia Department of Health and Human Resources – Bureau for Public Health [WVDHHR-BPH], and E. I. du Pont de Nemours and Company [DuPont][collectively referred to as the “Parties”].

**II. PURPOSE OF CONSENT ORDER.**

This Consent Order sets forth a series of tasks to be performed by the Parties in order to determine whether there has been any impact on human health and the environment as a result of releases of ammonium perfluorooctanoate [C8], CAS Number 3825-26-1, to the environment from DuPont operations. C8 is a material used by DuPont in its fluoroproducts manufacturing process at its Washington Works facility located at Washington, Wood County, West Virginia. C8 is not identified as a hazardous substance, hazardous waste or otherwise specifically regulated under West Virginia or federal statute or regulation.

This Consent Order has been negotiated in good faith and the actions undertaken by DuPont pursuant to this Consent Order do not constitute an admission of any liability on its part. DuPont retains the right to controvert in any other proceedings, other than proceedings to implement or enforce this Consent Order, the validity of the findings of fact and conclusions of law set forth herein. DuPont agrees to comply with and be bound by the terms of this Consent Order and further agrees in any proceeding to implement or enforce this Consent Order that it

will not contest the validity of this Consent Order or the jurisdiction of WVDEP and WVDHHR-BPH to issue it.

### III. DEFINITIONS.

Whenever the terms identified below are used in the Consent Order or in any exhibit or attachment hereto, the following definitions shall apply:

1. "The Agencies" shall mean the Department of Health and Human Resources, Bureau for Public Health and the Department of Environmental Protection, including the Divisions of Air Quality and Water Resources.
2. "C8" shall mean the chemical compound ammonium perfluorooctanoate.
3. "Detection Limit" means the lowest analytical level that can be reliably achieved within specified limits of precision and accuracy under routine laboratory conditions for a specified matrix. It is based on quantitation, precision and accuracy under normal operation of a laboratory and the practical need in a compliance-monitoring program to have a sufficient number of laboratories available to conduct the analyses.
4. "Effective Date" shall mean the date set forth in Section XVII of this Consent Order.
5. "EPA" shall mean the United States Environmental Protection Agency.
6. "Force Majeure" shall mean conditions or circumstances beyond the reasonable control of DuPont which could not have been overcome by due diligence and shall include, without limitation, acts of God, action or inaction of governmental agencies, or administrative or judicial tribunals or other third parties, or strikes or labor disputes (provided, however, DuPont shall not be required to concede to any labor demands), which prevent or delay DuPont from complying with the work plan.
7. "Groundwater Monitoring Well" shall mean any cased excavation or opening into the ground made by digging, boring, drilling, driving, jetting, or other methods for the purpose of determining the physical, chemical, biological, or radiological properties of groundwater. The term "monitoring well" includes piezometers and observation wells, which are installed for purposes other than those listed above, but does not include wells whose primary purpose is to provide a supply of potable water.
8. "Groundwater Well" or "Well" shall mean any drilled or excavated groundwater collection system that supplies water for public, private, industrial, or agricultural use and shall include drinking water wells. As used in this Consent Order, this term applies only to wells



located in West Virginia.

9. "Reimbursable Costs" shall mean costs attributable (on an hourly basis) to the work of Dee Ann Staats, Ph.D. in the negotiation and implementation of this Consent Order, the costs attributable to any other participants on the C8 Assessment of Toxicity Team, as described in Attachment C to this Consent Order, who are serving in that position as contractors to WVDEP, costs incurred by WVDEP in connection with the public meetings described in Attachment C, and costs attributable to any contractor retained at the direction of the Groundwater Investigation Steering Team (GIST).

10. "Washington Works" shall mean the manufacturing facility owned by DuPont and located in Washington, Wood County, West Virginia, as depicted on Exhibit 1 to this Consent Order.

11. "The Facilities" shall mean the Washington Works and the Local Landfill, depicted on Exhibit 1, the Letart Landfill, depicted on Exhibit 2, and the Dry Run Landfill, depicted on Exhibit 3.

12. "Reference Dose" or "RfD" shall mean an estimate (with uncertainty spanning perhaps an order of magnitude or greater) of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a lifetime. Chronic RfDs are specifically developed to be protective for long-term exposure to a compound.

13. "Screening Level" shall mean the concentration in a specific media such as air, water, or soil, that is likely to be without an appreciable risk of deleterious effects during a lifetime in the human population.

#### **IV. WAIVER OF RIGHTS.**

DuPont waives any and all rights it may have to appeal or challenge the validity or requirements of this Consent Order, and shall not challenge the jurisdiction of the Agencies to issue this Consent Order.

This Consent Order applies to and is binding upon the Parties, and their successors and assigns.

#### **V. FINDINGS OF FACT.**

1. C8 is a chemical substance which has no established state or federal effluent or emission standards.

2. C8 is a perfluorinated surfactant manufactured by the 3M Company and others.

Since the early 1950's C8 has been used by DuPont in its fluoropolymer-related manufacturing processes at its Washington Works facility, located in Wood County, West Virginia.

3. Residues containing C8 from fluoropolymer manufacturing processes at Washington Works are or have been released to the air, discharged to the Ohio River, disposed of at the Facilities, and otherwise shipped off-site for destruction and/or disposal. DuPont also captures for recycle a significant portion of used C8.

4. No permits issued to DuPont authorizing releases of pollutants to the environment contain specific limitations on the amount of C8 that may be released to the environment. However, C8 releases are addressed more generally in WVDEP Division of Air Quality permits as particulate matter, PM<sub>10</sub> (particulate matter with an aerodynamic diameter less than or equal to 10 microns), or as a volatile organic compound.

5. Since as early as 1990, DuPont has performed regular, voluntary water sampling to detect the presence and level of C8 in and around certain of its Facilities in West Virginia and has reported the results of this sampling to various government agencies. Currently, DuPont also samples and reports C8 concentrations in water as required by permits issued by WVDEP and EPA.

6. As a result of DuPont's sampling, C8 has been detected in varying concentrations in and around certain of its Facilities in West Virginia, including private drinking water wells and public water supplies.

7. Analyses of water samples have reported levels of C8 in the Lubeck Public Service District ("LPSD") drinking water supply.

8. DuPont, by and through its use of C8 in the fluoropolymer manufacturing process, is the likely source of C8 presence in and around certain of its Facilities in West Virginia.

9. Along with environmental sampling for C8, DuPont has performed and participated in multiple studies examining the potential effects of C8 exposure on human health and the environment.

10. Studies performed by DuPont and 3M have determined that C8 in sufficient doses, i.e., considering both amount and duration of exposure, is toxic to animals through ingestion, inhalation and dermal contact. Studies have also found that C8 is persistent in humans and the environment.

11. Although DuPont has collected a large amount of data on the presence of C8 in the environment, the Agencies believe that additional information will assist them in delineating the extent and concentrations of C8 in the environment at or near the Facilities. Available data collected by DuPont indicates that C8 is present in the surface and groundwater at the Letart and

Dry Run Landfills and at or near the Washington Works facility.

12. WVDEP and WVDHHR-BPH have determined that it is desirable to ascertain the source of drinking water for persons potentially exposed to C8 in groundwater or surface waters in the area of the Facilities.

13. EPA, WVDEP, and WVDHHR-BPH, in consultation and cooperation with one another, have requested, and DuPont has submitted, information and documents relating to the detection and presence of C8 in and around the Facilities and documents with respect to the human health studies being performed related to C8 exposure.

14. Based upon information submitted by DuPont and reviewed to date by EPA, WVDEP, and WVDHHR-BPH, the Agencies believe that additional data would assist in their evaluation of whether the ground and surface waters now containing C8 have a complete exposure pathway to humans and whether persons in and around the Facilities are at risk of adverse health effects from C8 exposure.

15. There have been no independent governmental or non-industrial studies performed on the human health effects of C8 exposure for the purpose of establishing an exposure standard for C8 applicable to the general public.

16. The Agencies have concluded that full site and health assessments are necessary to ascertain the extent and level of C8 concentrations in the environment and to assist them in determining whether C8 presents any possible danger to the public. DuPont has agreed to participate and assist in this effort.

17. The fluoropolymers industry has committed to EPA to reduce total actual C8 emissions for either the year 1999 or the year 2000 by 50 percent within three to five years of each company's commitment date. DuPont committed to this goal in 2000.

18. DuPont installed, in March 2001, a filter and carbon treatment system at its Washington Works facility that is demonstrating removal efficiency of 90-95% of the C8 in its major C8-containing wastewater stream.

## **VI. AUTHORITY TO ISSUE CONSENT ORDER.**

1. The WVDEP is the state agency vested with the authority to protect the environment in West Virginia.

2. Article 12, Chapter 22 of the West Virginia Code, the Groundwater Protection Act, grants to the WVDEP the authority to protect the State's groundwater from any contaminant

and, where contaminated groundwater is found, to institute a civil action or issue an order requiring that groundwater be remediated.

3. Article 5, Chapter 22 of the West Virginia Code, the Air Pollution Control Act, grants to the WVDEP the authority to protect the State's air from pollutants and to institute a civil action or issue orders to enforce the statute.

4. The WVDHHR-BPH is the state agency vested with the authority to regulate and protect drinking water supplies in West Virginia.

5. Article 1, Chapter 16 of the West Virginia Code, grants to the WVDHHR-BPH the authority to protect the public drinking water supply of the state and to perform all investigation necessary to assure its purity and safety, and further grants to the WVDHHR-BPH the authority to institute actions and issue orders to restore the purity of said water supply.

## **VII. REQUIREMENTS OF CONSENT ORDER.**

The Agencies have concluded that it is of great importance to have sufficient data upon which to determine the scope and potential risk of the presence of C8 in the environment in and around the Facilities. Therefore, the Agencies require the following:

### **A. Establishment of Groundwater Investigation Steering Team.**

1. A "Groundwater Investigation Steering Team" (GIST) shall be established with members of the team consisting of WVDEP, WVDHHR-BPH, EPA Region III, and DuPont. The WVDEP representative will be the team leader. The objectives and specific tasks of the team are set forth in full in Attachment A of this Consent Order. However, the primary purpose of the GIST will be to oversee an expeditious, phased approach to fulfilling the majority of the requirements set forth in Sections A through C. The work performed with oversight from the GIST shall be funded by DuPont in accordance with Section VIII of this Consent Order.

2. Upon conclusion of key milestones in the tasks set forth in Attachment A, the GIST shall issue interim or final reports setting forth findings of fact and conclusions regarding background data, groundwater monitoring, and plume identification as described in Attachment A. Any groundwater monitoring plan developed pursuant to Attachment A shall survive the termination of this Consent Order and shall be incorporated as a minor permit modification for the Facilities. DuPont reserves the right to request modification of the plans upon renewal of the Facilities' permits.

### **B. National Pollutant Discharge Elimination System Requirements.**

1. Except as occasioned by no-flow conditions, DuPont shall perform monthly sampling for C8 at the Local Landfill at certain outfalls identified in West Virginia/National Pollutant Discharge Elimination System ("WV NPDES") Permit No. 0076538 as Outfalls 101, 004 and 005.

2. Except as occasioned by no-flow conditions, DuPont shall perform monthly sampling for C8 at the Washington Works facility at certain outfalls identified in WV NPDES Permit No. WV0001279 as Outfalls 001, 002, 003, 005, 007, and 105.

3. Except as occasioned by no-flow conditions, DuPont shall perform monthly sampling for C8 at Dry Run Landfill at all outfalls identified in its WV NPDES Permit No. WV0076244.

4. Except as occasioned by no-flow conditions, DuPont shall perform monthly sampling for C8 at Letart Landfill at all outfalls identified in its WV NPDES Permit No. WV0076066.

5. With respect to the requirements of paragraphs VII.B.1 through VII.B.4, all sampling shall be performed pursuant to established EPA guidelines, where applicable, and results shall be delivered to the WVDEP within thirty days of receiving such results. DuPont shall record and report all attempts to sample under no-flow conditions.

6. Within 90 days of the Effective Date of this Consent Order, DuPont agrees to obtain a sample from each surface or alluvial water intake for public water supplies along the Ohio River in the area extending ten river miles downstream of the Washington Works facility and one river mile upstream of the Washington Works facility. If concentrations of C8 above the Detection Limit are found in any sampled public water supply within the upstream or downstream segments initially sampled, the segments within which intakes are to be sampled shall be extended to twenty river miles downstream or two river miles upstream, as appropriate. If concentrations above the Detection Limit are found in any segment so extended, additional sampling will be performed on water intakes within thirty river miles downstream or three river miles upstream, as appropriate.

7. The additional monitoring requirements contained in this subsection shall be incorporated into the Facilities' West Virginia/National Pollutant Discharge Elimination System permits by minor modification. DuPont reserves the right to request a modification of these requirements upon renewal of the permits.

#### C. Toxicological and Human Health Assessment.

1. DuPont agrees to fund the various tasks set forth below as a part of this Consent Order by establishing an escrow account at a bank agreed to by the Parties, or by some other

means agreed to by the Parties. Disbursements from said escrow shall be authorized by the C8 Toxicity Team Leader and DuPont representative jointly as described below.

2. A C8 Assessment of Toxicity Team ("CAT Team") shall be established with members of the team consisting of representatives of:

WVDEP  
WVDHHR-BPH  
EPA Region III  
NICS  
ATSDR  
DuPont

3. The WVDEP representative shall be the Team Leader.

4. The individual team members, the tasks of the team, and the team objectives are set forth in full in Attachment C of this Consent Order.

5. Upon conclusion of all the tasks set forth in Attachment C, the CAT Team shall issue a final report setting forth findings of fact and conclusions as to what extent there may be health risks associated with C8 at the Facilities.

#### D. Emission Modeling Assessment.

1. The following information shall be submitted to the Division of Air Quality ("DAQ") within 30 days of the Effective Date except where a different deadline is provided in this subsection:

a. A complete and accurate list of building dimension parameters for all structures located within the Washington Works facility that have a significant impact on the dispersion of C8 emissions. Significant impact for each structure on the site shall be determined based on the "area of building wake effects" as defined in the EPA User's Guide to the Building Profile Input Program (EPA-454/R-93-038 Revised Feb. 8, 1995).

b. A complete and accurate list of DuPont's current permitted allowable emission rates and confirmed actual C8 emission rates in pounds per year for the year 2000 for all sources located within the Washington Works facility. Each emission point shall be listed according to its stack I.D. and corresponding permit number. For each stack identified above as emitting C8 DuPont shall list all relevant stack parameters to be used in air dispersion modeling.

c. For each emission point (stack) emitting C8, the following information shall be supplied:

- i. Phase of C8 (solid, vapor or aqueous solution) at stack conditions.
- ii. The particle characterization to be used for modeling including the particle size distribution (microns), the mass fraction of C8 in each particle size category, and the particle density ( $\text{g/cm}^3$ ).
- iii. For particulate emissions, scavenging coefficients ( $\text{hr/s-mm}$ ) for both liquid and frozen precipitation to be used for wet deposition modeling based upon the particle size distribution and the EPA's Industrial Source Complex, Version 3 Model Guidance (EPA-454/B-95-003b Sept. 1995) ("ISC Guidance"). DuPont may submit, within 30 days of the Effective Date, information to support the use of the normalized scavenging coefficient in the ISC Guidance (Figure 11 of ISC Guidance) for C8's scavenging coefficients. DAQ shall approve or disapprove with justification in writing, DuPont's submission. Should DAQ disapprove, DuPont shall have the right, within seven days, to request a meeting with DAQ and USEPA to address the deficiencies set forth in DAQ's letter and to request reconsideration of DAQ's decision. Following a meeting of the parties, DAQ shall issue a decision letter regarding C8's scavenging coefficients within seven days of the meeting. DAQ reserves the right to require measurement of C8's scavenging coefficients in its decision and DuPont reserves the right to assert a claim of confidentiality in the event such a measurement is made.
- iv. For gaseous emissions, scavenging coefficients ( $\text{hr/s-mm}$ ) for both liquid and frozen precipitation to be used for wet deposition modeling will be provided as a function of droplet size using formulae in the open literature based on the physical properties of C8 and consistent with Section 1.4 of the ISC Guidance. DuPont may submit, within 30 days of the Effective Date, information to support the proposed scavenging coefficient for gaseous emissions including information on the percentage of C8 emissions that would be in gaseous form. DAQ shall approve or disapprove with justification in writing, DuPont's submission. Should DAQ disapprove, DuPont shall have the right, within seven days, to request a meeting with DAQ and USEPA to address the deficiencies set forth in DAQ's letter and to request reconsideration of DAQ's decision. Following a meeting of the parties, DAQ shall issue a decision letter regarding C8's scavenging coefficients within seven days of the meeting. DAQ reserves the right to require measurement of C8's scavenging coefficients in its decision and DuPont reserves the right to assert a claim of confidentiality in the event such a measurement is made.
- d. To the extent that the phases exist, a solid, liquid and vapor phase (T-P) diagram for C8 with respect to pressure and temperature. The temperature and pressure ranges shall be representative of exhaust gas conditions before and after control equipment. Estimates of C8's critical properties shall be provided along with measured ranges of phase transition temperatures.

e. In lieu of a binary phase (T-x-y) diagram representing the vapor-liquid equilibrium between water and C8, the solubility and Krafft Point of C8 in aqueous solutions, measured pK value for C8 dissociation in aqueous solutions, and measurements of C8 concentrations or related acids observed when tested in a head space GC at various concentrations, temperatures, and pHs representative of the ranges observed during actual operating conditions. Furthermore a discussion regarding the volatility of C8 in aqueous solutions as a function of pH will be provided. The information in this paragraph shall be submitted to the DAQ within 60 days of the Effective Date.

f. Henry's law coefficient for C8 and a discussion of its dependence on pH. The coefficient shall be defined at various temperatures covering the range observed during actual operations.

g. Any carbon adsorption data in the form of isotherms for C8 adsorption.

DAQ will provide DuPont an opportunity to comment on modeling methodology and assumptions prior to finalizing the modeling results.

2. Any expenses incurred as a result of accurately supplying the information requested above shall be covered by DuPont.

3. Upon submission of the information required by this Subsection VII.D, DAQ reserves the right to disapprove any data if the analytical methodology or quality control procedures are deemed inappropriate.

## **VIII. REIMBURSEMENT OF COSTS.**

1. DuPont agrees to establish an escrow account to fund Reimbursable Costs under this Consent Order. Expenditures from this account shall be made upon joint approval by a duly designated representative of the WVDEP and of DuPont ("designated representatives"). Written notice of such designation shall be sent to the persons identified pursuant to Section XVI of this Consent Order. Prior to the execution of this Consent Order, WVDEP has provided DuPont with an estimate of Reimbursable Costs that WVDEP expects to incur under this Consent Order.

2. Within 10 business days of the Effective Date, DuPont shall deposit in the escrow account funds in the amount of fifty thousand dollars (\$50,000). Each expenditure from the escrow account must be supported by an itemized accounting, including invoices and receipts. Said escrow account shall be replenished with additional funds whenever the balance is less than ten thousand dollars (\$10,000), or as agreed to by the designated representatives. Any unexpended amount remaining in the escrow account at the conclusion of the work to be performed under this Consent Order shall be returned to DuPont.

3. DuPont's obligation to pay Reimbursable Costs under this Consent Order shall



not exceed two hundred and fifty thousand dollars (\$250,000). Except as to Reimbursable Costs which are addressed separately in this section, all other costs incurred by DuPont in carrying out its obligations under Consent Order shall be the sole responsibility and obligation of DuPont.

#### **IX. QUALITY ASSURANCE/QUALITY CONTROL.**

All sampling and analyses performed pursuant to this Consent Order shall conform to EPA guidance regarding quality assurance/quality control, data validation, and chain of custody procedures. The laboratory performing the analyses shall be approved by the Parties prior to sampling.

#### **X. C8 REDUCTION PROGRAM.**

1. Notwithstanding current permitted emission levels, DuPont agrees to limit overall C8 emissions to the air to no more than actual calendar year 2000 levels on a calendar year basis and shall further provide to the WVDEP monthly emissions reports regarding C8. The reporting requirement contained herein shall be modified to quarterly reports upon the issuance of a Screening Level derived following the procedures set out in Attachment C.

2. DuPont agrees to reduce emissions to the air and discharges to the water of C8 collectively by 50% from actual 1999 levels by December 31, 2003.

3. DuPont shall operate and maintain the filter and carbon bed treatment system at its Washington Works facility with the goal of achieving 90-95% C8 removal efficiency in its major C8-containing wastewater stream.

4. DuPont shall conduct the following construction projects and abide by the specified dates:

a. DuPont shall install an improved scrubber filter to replace recovery device T6IZC on permit R13-815D. Construction shall begin no later than February 28, 2002. Initial operation shall begin no later than the date of start up after the April shutdown, or June 28, 2002, whichever is earlier.

b. DuPont shall modify the stack for emission point T6IZCE so that the emission point elevation is 170 feet above grade. The stack diameter, velocity, and flow rate shall be sized to provide effective dispersion of particulate emissions according to 45 Code of State Rules, Series 20 (Good Engineering Practice as Applicable to Stack Heights). Construction shall begin no later than February 28, 2002. Initial operation shall begin no later than the date of start up after the April shutdown, or June 28, 2002, whichever is earlier. At times when device T6IZC is not operating, permitted emissions from scrubber T6IFC shall be emitted to emission point

T61ZCE.

5. DuPont shall conduct a scrubber optimization and recovery improvement program that shall consist of a study of scrubber operation for device C2DWC2 on permit R13-614A. The study shall be complete by the end of March 2002. Provided the results are encouraging, the company shall implement identified improvements for this device and similar improvements for units C2DTC2 on permit R13-614A, C2EHC2 on permit R13-1953, and C1FSC2 on proposed permit for R13-2365A. Implementation of the improvements for the latter devices will be complete no later than the end of November 2002.

## **XI. COMPLIANCE WITH SCREENING LEVELS.**

1. The following requirements shall apply only if the procedures set out in Attachment C have been followed:

a. No later than 60 days after receipt of notification from the Agencies that data or information developed pursuant to this Consent Order or other information that is recent and valid demonstrates that DuPont's operations have resulted in C8 exposures above the Screening Levels derived following the procedures set out in Attachment C, DuPont shall submit a plan for review and approval by the Agencies that is designed to reduce such exposures to levels below the Screening Levels within a reasonable time (the "Remedial Plan" or "the Plan").

b. Within 30 days of receipt of the Remedial Plan submitted by DuPont, the WVDEP shall, upon consultation with the WVDHHR-BPH and based upon accuracy, quality, and completeness, either approve or disapprove the Plan. If the WVDEP disapproves the Remedial Plan, the WVDEP shall notify DuPont in writing that the Remedial Plan has been disapproved and shall specify the reasons for such disapproval. DuPont shall resubmit the Remedial Plan as revised to address the deficiencies identified in the notice. DuPont's failure to submit an approvable Remedial Plan shall be deemed a violation of this Consent Order.

2. In the event EPA or the WVDEP develops and finalizes a reference dose/screening level for C8 in accordance with applicable statutory and regulatory requirements ("the Regulatory EPA Standard") that would be applicable to Dupont's activities or the Facilities independent of this Consent Order, DuPont's obligations under this Section shall be determined with reference to the Regulatory EPA Standard. DuPont reserves all rights it may have to comment upon, object to, or appeal the Regulatory EPA Standard in proceedings separate and apart from this Consent Order.

## **XII. COMPLETION OF CONSENT ORDER.**

1. Except as to DuPont's obligations under Section XI, this Consent Order and DuPont's obligations hereunder shall terminate upon issuance of a completion letter(s) from the Secretary of the WVDEP or his designee and from the Commissioner of the WVDHHR-BPH to

DuPont. In a timely manner following receipt of a written request from DuPont the respective Agencies shall issue the completion letter(s) to DuPont or shall issue a letter to DuPont detailing the obligations and work that have not been completed in accordance with this Consent Order. The Parties agree that the Agencies' obligation to issue this letter shall be deemed a non-discretionary duty.

2. DuPont's obligation to achieve and maintain compliance with the Screening Levels as provided in Section XI of this Consent Order shall survive the termination of this Consent Order. Such obligation shall terminate only as provided in Section XI or upon agreement of the Parties.

### **XIII. ADDITIONAL ACTIONS.**

The Agencies, individually or collectively, pursuant to their statutory duty and authority, may determine that additional action, beyond the tasks set forth in this Consent Order, is necessary to protect human health and/or the environment. Nothing in this Consent Order shall be construed as restraining or preventing the Agencies from taking such actions. Nothing in this Consent Order constitutes a satisfaction of or release from any claim or cause of action against DuPont for any liability it may have pursuant to the federal Clean Water Act, the federal Clean Air Act, the federal Safe Drinking Water Act, the West Virginia Groundwater Protection Act, the West Virginia Air Pollution Control Act, other statutes applicable to this matter, or West Virginia common law. Nothing in this Consent Order in any way constitutes a modification or waiver of statutory requirements of DuPont and nothing in this Consent Order shall obligate DuPont to undertake any actions not specified herein.

### **XIV. ENFORCEMENT.**

Enforcement of this Consent Order may be had by the filing of a civil action by any of the Agencies in the Circuit Court of Wood County, West Virginia. Violation of the terms and conditions of this Consent Order by DuPont is a violation of the West Virginia Code and may result in enforcement action being taken, including a request for civil penalties as set forth by law. DuPont shall not be liable for violations of this Consent Order due to any "Force Majeure" condition.

### **XV. CONTENTS OF CONSENT ORDER/MODIFICATION.**

The entirety of this Consent Order consists of the terms and conditions set forth herein and in any attachments or exhibits referenced herein. Modification of the terms and conditions of this Consent Order including any modification of timeframes or deadlines established in this Consent Order shall be made only by agreement of the Parties in writing, except that modifications to any

requirement set out in the attachments to this Consent Order may be made upon consensus of the members of the GIST or the CAT Team, as appropriate.

#### **XVI. ADDRESSES FOR ALL CORRESPONDENCE**

All documents, including reports, approvals, notifications, disapprovals, and other correspondence, to be submitted under this Consent Order shall be sent by certified mail, return receipt requested, hand delivery, overnight mail or by courier service to the following addresses or to such addresses DuPont or WVDEP may designate in writing.

Documents to be submitted to WVDEP should be sent to:

WV Department of Environmental Protection  
1356 Hansford Street  
Charleston, West Virginia 25301

Attention: Armando Benincasa, Esq.  
Attention: Dee Ann Staats, Ph.D.  
Phone No.: (304) 558-2508

Documents to be submitted to WVDHHR-BPH should be sent to:

WV Department of Health and Human Resources  
Bureau for Public Health  
815 Quarrier Street, Suite 418  
Charleston, West Virginia 25301

Attention: William Toomey, Manager of Source Water Assessment Program  
Phone No.: (304) 558-2981

Documents to be submitted to DuPont should be sent to:

E. I. du Pont de Nemours and Company  
Washington Works  
P.O. Box 1217  
Parkersburg, West Virginia 26102

Attention: Paul Bossert  
Phone No.: (304) 863-4305

and

E. I. du Pont de Nemours and Company  
Legal Department, Suite D-71  
1007 Market Street  
Wilmington, Delaware 19898

Attention: Bernard J. Reilly, Esq.  
Phone No.: (302) 774-5445

#### **XVII. AUTHORIZED SIGNATORIES/NON-ADMISSION.**

The undersigned representatives state that they have had full and fair opportunity to review this Consent Order and have had opportunity to allow for their counsel to do the same, and therefore enter this Consent Order freely and with full knowledge of its terms and conditions.

The undersigned do hereby confirm that they have the authority to enter into this Consent Order and have the authority to bind their respective party.


Neither the terms of this Consent Order, nor execution thereof shall constitute an admission by DuPont of any fact or of any legal liability. DuPont expressly reserves all rights and defenses that may be available in any proceeding involving third parties or involving WVDEP and WVDHHR-BPH in any other matter.

This Consent Order may be signed in counterparts and shall be effective upon signature of all the Parties below ("Effective Date").

Entered this 14<sup>th</sup> day of NOVEMBER 2001, by:

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:

  
WILLIAM E. ADAMS, DEPUTY SECRETARY  
West Virginia Department of Environmental Protection  
1356 Hansford Street  
Charleston, West Virginia 25301

Entered this 15<sup>th</sup> day of November, 2001, by:

WEST VIRGINIA DIVISION OF HEALTH AND HUMAN RESOURCES – BUREAU FOR  
PUBLIC HEALTH

BY:

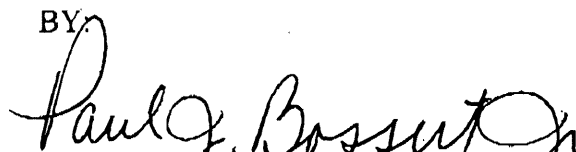
  
DR. HENRY TAYLOR, COMMISSIONER

Bureau for Public Health  
West Virginia Department of Health and Human Resources  
Diamond Building, Room 702  
350 Capitol Street  
Charleston, West Virginia 25301

Entered this 15<sup>th</sup> day of Nov, 2001, by:

E. I. DU PONT DE NEMOURS AND COMPANY

BY:

  
PAUL BOSSERT, PLANT MANAGER

## **Attachment A**

### **C8 GROUNDWATER INVESTIGATION STEERING TEAM**

A team of scientists shall be assembled to assess the presence and extent of C8 in drinking water, groundwater and surface water at and around the DuPont Washington Works facility, and the Local, Letart, and Dry Run Landfills. The Groundwater Investigation Steering Team (GIST) shall include scientists from WVDEP, WVDHHR-BPH, EPA Region III, and DuPont. DuPont shall fund the GIST via an escrow account as provided in Section VIII of the attached Consent Order ("the Consent Order"). Disbursements from this account shall be authorized jointly by the WVDEP GIST leader, and the DuPont representative, Andrew S. Hartten.

A schedule summarizing key GIST tasks, submittals, start and end dates is provided at the end of this document.

#### **GIST Member Organizations/Representatives/General Functions**

##### **WVDEP**

David Watkins –Groundwater Protection- GIST team leader; escrow funds disbursement oversight; project management and coordination

George Dasher-advisor and technical review

Dee Ann Staats, Ph.D.-advisor

##### **EPA Region III**

Garth Connor-science advisor

Jack C. Hwang – Hydrogeologist

Roger Rheinhardt-Environmental Engineer

##### **DuPont**

Andrew Hartten-Principal Project Leader/Hydrogeologist-technical review, project management and coordination of field investigation activities; escrow funds disbursement oversight.

##### **WVDHHR-BPH**

William Toomey-Manager, Source Water Assessment Program- Bureau for Public Health advisor

## **GIST Team Objectives and Efforts**

The primary objective of the GIST is to efficiently review and direct groundwater and surface water monitoring and investigation activities as prescribed in the Consent Order and in this Attachment. The GIST will utilize a phased approach and employ rapid team decision making toward meeting the requirements in an efficient and timely manner. Unless otherwise directed by the GIST, the tasks outlined below shall be performed by DuPont or its representatives.

The GIST will issue a final report(s) with findings and conclusions regarding groundwater quality in and around the Facilities, and the extent of groundwater contamination in and around the Facilities. The GIST final report shall further make recommendations regarding the need for any further work or actions that need to be taken to assure protection of groundwater quality and human health into the future.

The tasks set forth below and in the Consent Order are the minimum tasks to be performed by DuPont and the GIST pursuant to the Consent Order. Additional tasks may be necessary to assure the goals [full groundwater assessment and C8 impact, plume identification, and receptor identification] of the GIST and the Consent Order are met. Those tasks shall be agreed upon by the GIST.

### **Key Tasks of GIST**

#### **Task A: Groundwater Use and Well Survey/Groundwater Monitoring**

- Objectives: Conduct a distance-phased groundwater well and water use survey within a 1-mile (and possibly 2 and 3-mile) radial distance or directionally focused distance of the Washington Works and Local, Letart, and Dry Run Landfills.<sup>1</sup>
- Summary: The phased approach to the water and groundwater well use survey will allow the GIST to focus efforts along established C8 impact transport pathways and cease activities in directions where impacts are not present or where there are minimal concentrations. Data results tables will be generated in a timely manner to allow the GIST to meet, evaluate the data, and determine the next course of action. The GIST will determine when the final groundwater well use survey shall be released.

DuPont agrees to perform, under the supervision of the GIST and through an agreed-to third party, a groundwater use and well survey identifying and sampling all groundwater wells within a 1-mile radius of the three landfills set forth above and the Washington Works facility. The phased approach may be amended by the GIST should field conditions require, e.g., lack of sampling wells in the 1-mile radius, lack of quality sampling points within the 1-mile radius.

Sampling shall be performed with the specific purpose of finding and measuring the C8 concentration in water. Should concentrations of C8 found in groundwater wells exceed 1 µg/l within the 1-mile radius, the GIST will determine

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<sup>1</sup> The water use survey should be in substantially the same format as Attachment B.



whether to expand the well survey to a 2-mile radius, a 3-mile radius, or in a specific direction only. Drinking water wells that measure above 1 µg/l shall be re-sampled at a frequency to be determined by the GIST.

Note: The level of 1 ug/l is utilized in this Consent Order for monitoring purposes only and not as a benchmark for determining risk and this level may be adjusted as determined the GIST in furtherance of the tasks and objectives set forth in this Attachment.

- **Timing:** The initial well survey within a 1-mile radius of the Facilities will be conducted within 60 days of the Consent Order's Effective Date. Additional well survey activities will be conducted on a schedule to be determined by the GIST.

#### **Task B: Assessment of Existing Groundwater and Surface Water Monitoring Data**

- **Objectives:** Develop and implement a monitoring plan that determines the presence and extent of C8 in drinking water, groundwater, and surface water in and around the Washington Works facility and Local, Letart, and Dry Run Landfills and provide a compilation of all available groundwater/surface water monitoring and hydrogeologic characterization data for each facility, as reflected in Table A-1.
- **Summary:** The GIST will be tasked with an expedited evaluation of existing historical data and hydrogeologic information in order to prioritize the initial scope of work for continuing groundwater monitoring and any additional investigation activities (e.g., monitoring well installations) required under plume identification. DuPont shall provide all historical data and hydrogeologic information it may have related to the Facilities.
- **Timing:** Within 30 days of the completion of Task A, the GIST will review all the C8 analytical and facility hydrogeologic information to determine the scope of work for groundwater monitoring and additional investigation. The GIST will then establish a schedule for those activities. It is anticipated that a summary of all historical information for each facility will be submitted to GIST within 60 days of the Consent Order's effective date.

#### **Task C: Plume Identification/Groundwater Assessment**

- **Objective:** Determine the vertical and horizontal extent of any and all C8 impacted groundwater exceeding 1 ug/l or as directed by the GIST, which may determine a lower threshold than 1 ug/l. This task shall also include an assessment of C8 impacted groundwater at Letart Landfill and its impact on the Ohio River and public water supplies along the river.
- **Summary:** The GIST shall first review historical data and results of Task A to determine an appropriate scope of work. Activities should be prioritized to address groundwater plumes contributing to or with the potential to flow toward off-site receptors, with emphasis on those areas where groundwater is used as a drinking water source.

Upon completion of investigation activities, DuPont shall provide the GIST with predicted groundwater flow and contaminant transport models to assess future plume migration.

- Timing: Upon review of all available information and on a schedule to be determined by the GIST, the GIST will complete an initial evaluation of data to determine and prioritize plume identification.

The timing of the initial phase of plume identification/investigation activities and other activities will be on a schedule established by the GIST. Further investigatory activities needed and agreed to by the GIST to carry out the goals of the GIST shall be performed by DuPont on a schedule established by the GIST.

#### Modeling

Any and all modeling performed pursuant to this attachment and the Consent Order shall use Groundwater Modeling System, or some other model as approved by the GIST.

TABLE A-1

COMPILATION OF HISTORICAL DATA AND MONITORING PLAN	
a. Dependent upon the availability of certain information, an historical data summary documented in a report that includes:	<ul style="list-style-type: none"> <li>• A location map.</li> <li>• A site map showing the location of all known groundwater monitoring wells, residential groundwater wells and public water supply within a 1-mile radius the Facilities.</li> <li>• Top-of-groundwater maps. These should span the entire sampling life of the site and should be no less than yearly. If DuPont has only one year's worth of data for a given site, then these maps should be for each quarter; if DuPont has several years worth of data for each site, then these maps can be annual.</li> <li>• C8 concentration contour maps. These should span the entire sampling life of the site and should be no less than yearly. If DuPont has only one year's worth of data for a given site, then these maps should be for each quarter; if DuPont has several years worth of data for each site, then these maps can be annual.</li> <li>• All the C8 groundwater data that has been collected to date. These data should be submitted in easy-to-read tables. These tables should use the method, "&lt;x", to designate all concentrations below the laboratory's minimum detection limit (not "ND" or some other abbreviation), and they should use "mg/" or "µg/" as the unit designation.</li> <li>• If unable to provide the above data, DuPont shall document the reasons why it is unable to gather and submit the information.</li> </ul>
b. A groundwater monitoring plan for the Facilities which should address, at a minimum:	<ul style="list-style-type: none"> <li>• C8 sampling. The samples should be taken from all the wells at the three landfill sites and from a select number of wells at the Washington Works plant. These select wells are to be chosen by the GIST before the groundwater monitoring program begins based on evaluation of historical data/information. The frequency of sampling shall be monthly for the first four months following the Effective Date and quarterly thereafter. Any new wells required for monitoring or plume identification purposes will be integrated in each site's groundwater monitoring program on a schedule agreed to by the GIST.</li> </ul>

	<ul style="list-style-type: none"> <li>• Report of Results. Reporting should be quarterly and to the WVDEP Groundwater Program at the following address.   <div style="text-align: center;"> WVDEP Division of Water Resources  Groundwater Program  1201 Greenbrier Street  Charleston, West Virginia 25311  Re: DuPont/C8 monitoring. </div> </li> <li>• Each report should include the following: <ul style="list-style-type: none"> <li>(a) A site location map.</li> <li>(b) A site map showing the groundwater monitoring well locations.</li> <li>(c) A top-of-groundwater map.</li> <li>(d) A C8 concentration map.</li> <li>(e) Groundwater elevation and well screen data.</li> <li>(f) A table of all the historical C8 sampling data. Note: where available information allows, abbreviations should not be used to designate No Detect concentrations and the units "ppb" and "ppm" should not be used.</li> <li>(g) Laboratory analysis sheets.</li> <li>(h) Chain of custody records.</li> </ul> </li> </ul>
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**Attachment B**

**GROUNDWATER WELL USE SURVEY**

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_

Best Time to Contact Owner: \_\_\_\_\_

1. Do you have one or more water well(s) on this property? (It need not be in use currently.)  
If no, stop now and return survey. Yes \_\_\_\_\_ No \_\_\_\_\_

County Water Well Permit No. \_\_\_\_\_

2. Is the well(s) currently (circle one) used unused or filled in?

3. Is the well(s) used for drinking water? Yes \_\_\_\_\_ No \_\_\_\_\_

4. Is this well(s) used for other purposes? If yes, please specify uses below:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. What is the approximate frequency of use? Circle One:

Daily Weekly Monthly Summer

6. Date last used? \_\_\_\_\_

7. Is there a pump in the well? Yes \_\_\_\_\_ No \_\_\_\_\_

8. Is there a conditioner, softener, chlorinator, filter, or other form of treatment for the system? Yes \_\_\_\_\_ No \_\_\_\_\_

If so, what is the form of treatment? \_\_\_\_\_

9. Is there any faucet where water does not first pass through the treatment system?  
Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, is it (circle one) inside or outside?

10. What year was the well constructed? \_\_\_\_\_

11. Please provide the following information regarding the well(s) if known: (circle one)

A. Total Depth (feet below ground surface):

30-60          60-90          90-120          120 or more

B. Casing Type:

PVC          steel          stone          none    other \_\_\_\_\_

C. Well Construction:

dug          drilled          open or uncased          bedrock

D. Screened Interval (length in feet):

0-10          10-20          20-30          30-60          60 or more

E. Well Diameter (inches):

0-6          6-12          12-24          24 or more

## **Attachment C**

### **C8 ASSESSMENT OF TOXICITY TEAM**

A team of scientists shall be assembled to assess the toxicity and risk to human health and the environment associated with exposure to ammonium perfluorooctanoate (C8) releases from DuPont's activities. The C8 Assessment of Toxicity Team (CAT Team) shall include scientists from academia, government, non-profit organizations, and industry. The CAT Team also shall include the WVDEP Environmental Advocate, Pam Nixon, as a representative of West Virginia's citizens.

The WVDEP, utilizing funds from an escrow account funded by DuPont, shall contract with a non-profit organization, the National Institute for Chemical Studies (NICS), for the services described herein. Point of contact for the NICS shall be Jan Taylor, Ph.D. The NICS shall subcontract with Marshall University's Center for Rural and Environmental Health for services in risk communication provided by James Becker, M.D. and his staff. Dr. Becker shall familiarize himself with the toxicity of C8, the work performed by TERA as described herein, and attend public meetings to provide expertise in risk communication. The NICS shall subcontract with the non-profit scientific organization, Toxicology Excellence for Risk Assessment (TERA) whose point of contact is Joan Dollarhide, Ph.D. The TERA shall provide services in toxicology and risk assessment. Work assignments, tasks, and deliverables are described below.

#### **CAT Team Member Organizations/ Representatives<sup>1</sup>/ General Functions**

##### **WVDEP**

Dee Ann Staats, Ph.D. - Science Advisor - team leader; escrow funds disbursement oversight; project management and coordination; toxicology/risk assessment and communication;

Pam Nixon - Environmental Advocate - advisor;

##### **NICS**

Jan Taylor, Ph.D. -contractor administrative oversight;

James Becker, M.D. (Marshall University) - consultant in risk communication;

TERA (point of contact: Joan Dollarhide, Ph.D.)- consultant in toxicology/risk assessment;

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<sup>1</sup> The parties may, in their discretion, elect to substitute their representatives with persons of similar qualifications.

**DuPont**

Gerald Kennedy, Director of Applied Toxicology and Health, Haskell Laboratory  
- reviewer toxicology; escrow funds disbursement oversight;

John Whysner, M.D. – toxicology/risk assessment and communications;

Paul Bossert – Washington Works Plant Manager – communications;

The following members of the CAT Team shall act as reviewers or advisors.

**WV Department of Health and Human Resources – Bureau for Public Health  
(WVDHHR-BPH)**

William Toomey – Manager, Source Water Assessment Program - advisor;  
Barbara Taylor – Director, Office of Environmental Health Services - advisor;  
Local representative - advisor;

**Environmental Protection Agency (EPA)**

Headquarters - Jennifer Seed – reviewer and advisor toxicology;  
Region III Philadelphia -  
Samuel Rotenberg, Ph.D. – reviewer and advisor toxicology/ risk  
assessment;  
Garth Connor – advisor hydrogeology;  
Roger Reinhart – reviewer and advisor Safe Drinking Water Act;  
Cincinnati - John Cicmanec, DVM – reviewer and advisor toxicology;

**Agency for Toxic Substances and Disease Registry (ATSDR)**

Atlanta - John Wheeler, Ph.D. - reviewer and advisor in toxicology/ risk  
assessment;  
Philadelphia - Lora Werner - coordinator for ATSDR;

**Non-CAT Team Efforts**

Other efforts are currently underway which may produce information for the CAT Team to utilize. The CAT Team will coordinate and communicate closely with these other efforts. These include:

1. Dupont's air modeling of C8 emissions from the Washington Works plant;
2. WVDEP's air modeling of C8 emissions from the Washington Works plant;



3. USEPA Draft Hazard Assessment which summarizes the available toxicity information regarding C8, to the extent completed prior to the assessment contemplated herein;
4. ATSDR's Health Consultation that estimates the risk to the community associated with C8 in drinking water from the Lubeck Public Service District, to the extent completed prior to the assessment contemplated herein.
5. Existing C8 concentrations in Lubeck Public Service District data.
6. Groundwater C8 Analysis (see GIST activities described in Attachment A) and Well Use Survey (see example survey in Attachment B) at the residences in the area of the 3 landfills and the Washington Works Plant.

### **Tasks of CAT Team**

The tasks to be performed by the CAT Team are described briefly in Table 1, and in more detail below. These tasks are discussed below within the context of a Scope of Work for both Dr. Becker and for TERA as well.

Tasks of the CAT Team shall be organized into three phases. Phase I includes those tasks necessary to prepare for and hold the first public meeting. In Phase II, TERA shall conduct such scientific tasks as: reviewing available toxicity and epidemiological studies; developing Provisional Reference Doses and Screening Levels for protection of human health; evaluating existing information relative to ecological health; and conducting one general risk assessment involving comparisons of exposure concentrations to Screening Levels, for the three landfills and the Washington Works Plant, and the Lubeck Public Service District. TERA shall prepare a report on their findings. Phase III includes those tasks necessary to prepare for and hold the second public meeting. The results of the C8 groundwater analysis and risk assessment shall be presented in the second public meeting.

No communication between Dupont representatives and NICS, Dr. Becker, or TERA shall be permitted without the participation of Dr. Staats. All information will be provided to Dr. Becker and TERA by WVDEP; thus, all information contributed to the effort by Dupont shall be sent in triplicate to Dr. Staats for forwarding to Dr. Becker and TERA.

### **Phase I TASK A-1: First Public Meeting**

Two public meetings are anticipated for this project. The First Public Meeting shall occur in Phase I for the purposes of introducing the CAT Team and other involved parties to the public; relating historical information on previous concentrations of C8 in Lubeck Public Service District water supply; informing the citizens of the ensuing activities; and inviting the public to participate by cooperating with sampling and survey efforts in the Groundwater C8 Analysis and Well Use Survey. In order to prepare for the

First Public Meeting, CAT Team members shall familiarize themselves with the available toxicological information concerning C8.

A CAT Team meeting shall be held immediately prior to the first public meeting to: (1) conduct a site visit to the three landfills and the Washington Works Plant, and surrounding residential areas; (2) discuss the toxicity of C8 and other pertinent data; (3) prepare an agenda for the public meeting; (4) coordinate and prepare for the public meeting. Finally, the First Public Meeting will be held and public questions and comments will be recorded by WVDEP.

**TABLE 1. TASKS OF CAT TEAM**

<p><b>Task A: Public Meetings (two meetings are anticipated)</b>  <b>Objective:</b> to inform the local citizens of the following: (in Meeting #1) intent to perform a groundwater well use survey and analysis for C8; intent to develop Screening Levels; and to ask for their cooperation in conducting the water use survey; and (in Meeting #2) results of survey, chemical analysis, and risk assessment. Note that an interim public meeting may be required should six months pass from the first public meeting and the CAT Team Final Report has not been issued.  <b>Primary Responsibility:</b> Staats</p>
<p><b>Task B: Development of Provisional Reference Doses</b>  <b>Objective:</b> to develop Provisional Reference Doses for C8 for the inhalation and ingestion (and dermal, if possible) routes of exposure.  <b>Primary Responsibility:</b> TERA</p>
<p><b>Task C: Development of Screening Levels Based on Protection of Human Health</b>  <b>Objective:</b> to utilize the Provisional Reference Doses to develop human health risk-based Screening Levels for C8 in air, water, and soil. Note a determination of the potential carcinogenicity of C8 will be conducted as well.  <b>Primary Responsibility:</b> TERA</p>
<p><b>Task D: Ecological Data Review</b>  <b>Objective:</b> to review available information to determine whether sufficient studies have been performed and data have been collected to develop screening criteria for ecological receptors.  <b>Primary Responsibility:</b> TERA</p>
<p><b>Task E: Draft Report and Final Report</b>  <b>Objective:</b> to present and discuss the results of the above tasks.  <b>Primary Responsibility:</b> TERA</p>

**Phase II Tasks B, C, D, and E Development of Provisional Reference Doses and Screening Levels, and Risk Assessment**

In Phase II, TERA shall conduct the toxicological and risk assessment activities. After having reviewed the toxicological information regarding C8 provided by WVDEP, TERA shall consult with toxicologists on the CAT Team, as coordinated by Dr. Staats, regarding its proposed approach for this project. Following such consultation, TERA

shall develop Provisional Reference Doses for C8 for the oral, inhalation, and dermal (if possible) routes of exposure. Then TERA shall calculate Screening Levels for water, soil and air based on the risk factors they have estimated. TERA shall perform one general risk assessment involving comparison of exposure concentrations to Screening Levels for the three landfills and the Washington Works Plant, and the Lubeck Public Service District water supply, that focuses on current risk to human health, including workers and residents. This risk assessment shall include: (1) identification of reasonably anticipated land use, surface water and groundwater use; (2) identification of receptors; (3) identification of exposure pathways; (4) identification of exposure concentrations; and (5) comparison of exposure concentrations to appropriate Screening Levels. TERA shall utilize data obtained from the other efforts discussed above such as air modeling; groundwater C8 concentrations in residential and public wells; residential groundwater well use survey; the USEPA's Draft Hazard Assessment; and ATSDR's Health Consultation (if available). TERA also shall review available information to determine whether sufficient studies have been performed and data have been collected to develop screening criteria for protection of ecological health, particularly aquatic life. TERA shall prepare a draft and a final document that discusses the results of their efforts and summarizes the data utilized from other efforts. As the tasks of the CAT Team and other involved parties' progress, data gaps and research recommendations may become evident. These shall be included in TERA's report as suggestions for further research to elucidate the toxicity of C8.

### Phase III Second Public Meeting

The purpose of the Second Public Meeting is to present to the citizenry the results of the efforts of the GIST and CAT Teams including C8 concentrations in groundwater from residential wells and public wells the screening levels and the general risk assessment. Air modeling results of the efforts of WVDEP and Dupont will be discussed also. The WVDEP will address any further actions that may be necessary.

## **SCOPE OF WORK FOR JAMES BECKER, M.D.**

Dr. Becker is a medical doctor specializing in environmental health at the Marshall University School of Medicine Center for Rural and Environmental Health. He will be assisting the WVDEP in his specialty area of risk communication at the two anticipated public meetings. The specific tasks assigned to Dr. Becker are described below.

### **Phase I Task A-1: First Public Meeting**

Dr Becker will assist in preparation for the first public meeting, and attend the meeting providing expertise in risk communication . He will familiarize himself with the available toxicological data, which will be provided to him by WVDEP, with particular emphasis on the epidemiological studies. Note that the toxicological data already has been summarized in the Draft Hazard Assessment prepared by USEPA. No literature search or document retrieval will be required. Specific subtasks required in Phase I to prepare for the first public meeting are described below:

Subtask 1 – Familiarization with toxicological data provided by WVDEP including but not limited to:

- a. 8 compact discs of information provided to USEPA under TSCA by 3M Corp (note only a small portion of this information concerns C8);
- b. Draft Hazard Assessment document from USEPA;
- c. ACGIH Threshold Limit Value (TLV).
- d. Journal articles and other information provided by WVDEP.

Subtask 2 – Attend a meeting prior to the first public meeting to:

- a. conduct a site visit of the 3 landfills and the Washington Works Plant, and local residential areas;
- b. discuss and prepare an agenda;
- c. discuss the toxicology and risks associated with C8 with the other CAT Team members.

Subtask 3 – Attend First Public Meeting

### **Phase III Task A-2 Second Public Meeting**

Dr Becker will assist in preparation for the second public meeting, and attend the meeting providing expertise in risk communication. The following subtasks will be required:

Subtask 1 – Familiarization with the toxicological and risk assessment report prepared by TERA;

Subtask 2 – Attend a meeting prior to the second public meeting to:

- a. discuss the toxicology and risks associated with C8 with the other CAT Team members;
- b. discuss and prepare an agenda.

Subtask 3 – Attend Second Public Meeting

Note that the second public meeting is assumed to be the final public meeting; however, results of data collection may warrant additional public meetings and an expansion of the Scope of Work.

## **SCOPE OF WORK FOR TERA**

TERA (Toxicology Excellence for Risk Assessment) is a non-profit organization that applies sound toxicological data to the risk assessment process to find common ground between environmental, industry, and government groups. TERA will be providing services in toxicology and risk assessment. TERA scientists will be developing risk factors and screening criteria; and conducting one general risk assessment for the 3 landfills, Lubeck Public Service District water supply and the Washington Works Plant. The specific tasks assigned to TERA are described below

### **Phase II Tasks B, C, D, and E: Development of Provisional Reference Doses and Screening Levels, and General Assessment of Risk**

Subtask 1 – TERA staff will familiarize themselves with the toxicological data provided to by WVDEP. No literature search or document retrieval will be required. Toxicological data to be provided to TERA shall include but is not limited to the following:

- a. 8 compact discs of information provided to USEPA under TSCA by 3M Corp (note only a small portion of this information concerns C8);
- b. USEPA Draft Hazard Assessment for C8;
- c. Journal articles and other information submitted to WVDEP by DuPont.

Subtask 2 – TERA staff will:

- a. identify all possible critical toxicological studies suitable for developing Reference Doses for the oral, inhalation, and dermal (if possible) routes of exposure;
- b. outline methodology for developing said Reference Doses and for developing Screening Levels for air, water, and soil based on said Reference Doses corresponding to each critical study identified in subtask 2-a;
- c. convene a meeting at the TERA facility in Cincinnati, Ohio, to present their findings in subtask 2-a and 2-b, and consult with CAT Team toxicologists as coordinated by Dr. Staats;
- d. finalize Reference Doses and Screening Levels based on recommendations of the CAT Team toxicologists as coordinated by Dr. Staats.

Subtask 3 – TERA shall conduct one general risk assessment for the three landfills and Washington Works Plant, and the Lubeck Public Service District water supply based on current risk to human health. This risk assessment shall include:

- a) identification of reasonably anticipated land use, surface water and groundwater uses;

- b) identification of receptors;
- c) identification of exposure pathways;
- d) identification of exposure concentrations;
- e) comparison of exposure concentrations to appropriate Screening Levels;

TERA shall utilize the following data in the risk assessment process:

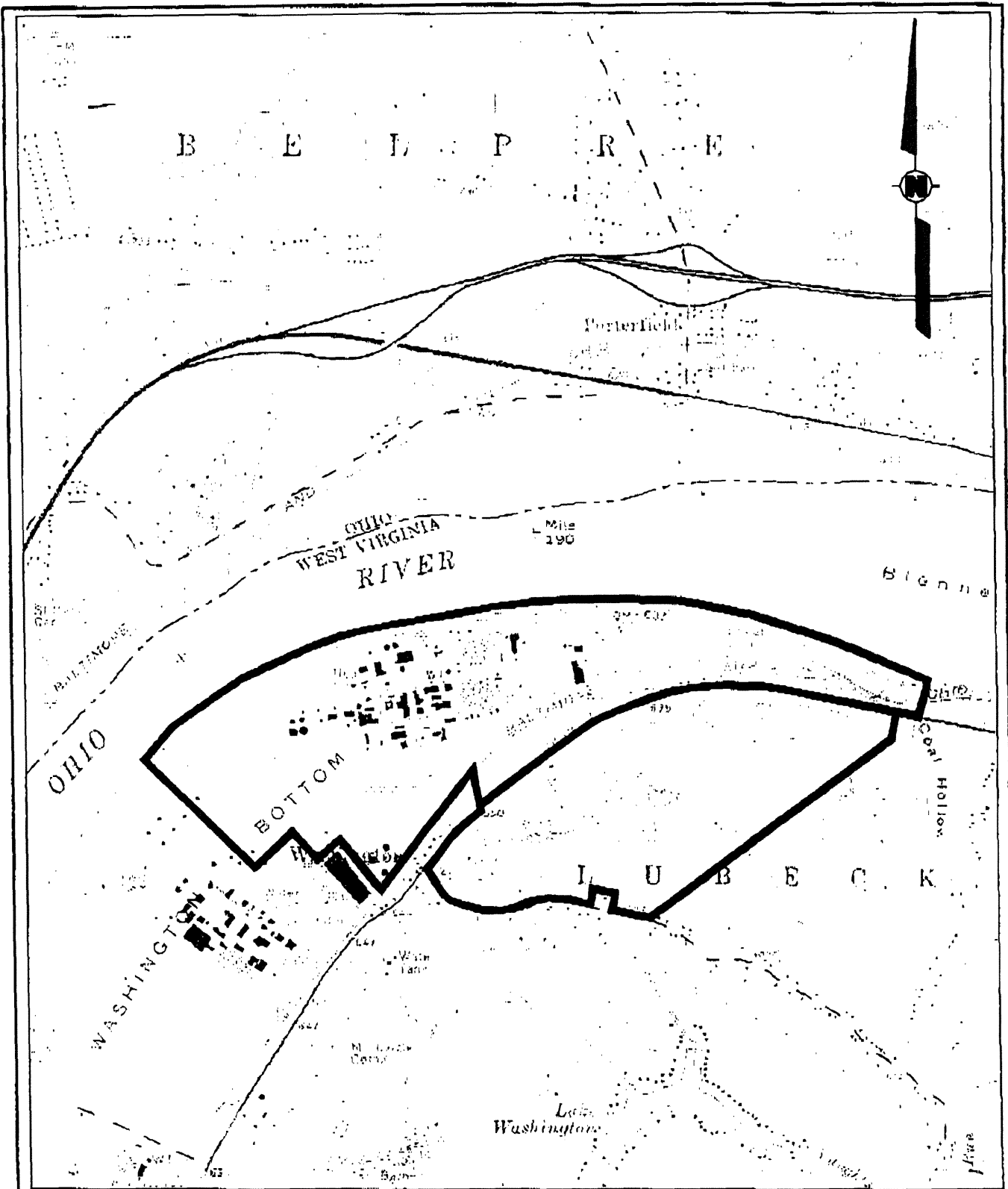
- a) air modeling data from DuPont;
- b) air modeling data from WVDEP;
- c) water use data from the Well Use Survey;
- d) groundwater data from the Groundwater Well Analysis of C8 for residential wells;
- e) drinking water data from Lubeck Public Service District wells;
- f) any available ATSDR Health Consultation that assesses potential health effects from exposure to C8 in public supply drinking water.

Subtask 4 – TERA shall review the ecological data and determine whether there is sufficient information to support the development of a C8 Screening Level for protection of ecological health

Subtask 5 – TERA shall compile and discuss the results of the above tasks into a comprehensive report (draft and final versions), which also refers to and provides a brief summary of the following:

- a) USEPA's Draft Hazard Assessment of C8;
- b) DuPont's air modeling data;
- c) WVDEP's air modeling data;
- d) groundwater data from the Groundwater C8 Analysis and Well Use Survey of Local Residents, and Lubeck Public Service District;
- e) ATSDR Health Consultation that assesses potential health effects from exposure to C8 in public supply drinking water, if available.

Additionally, TERA shall include in the report any insights or recommendations for future research gleaned during this process that would further elucidate the toxicity of C8. Also, TERA shall provide in the report of a summary discussion of the relevance the carcinogenicity of C8 in rats to humans.



Source: USGS Little Hocking, Ohio -  
Quadrangle



**Corporate Remediation Group**

An Alliance between  
DuPont and URS Diamond



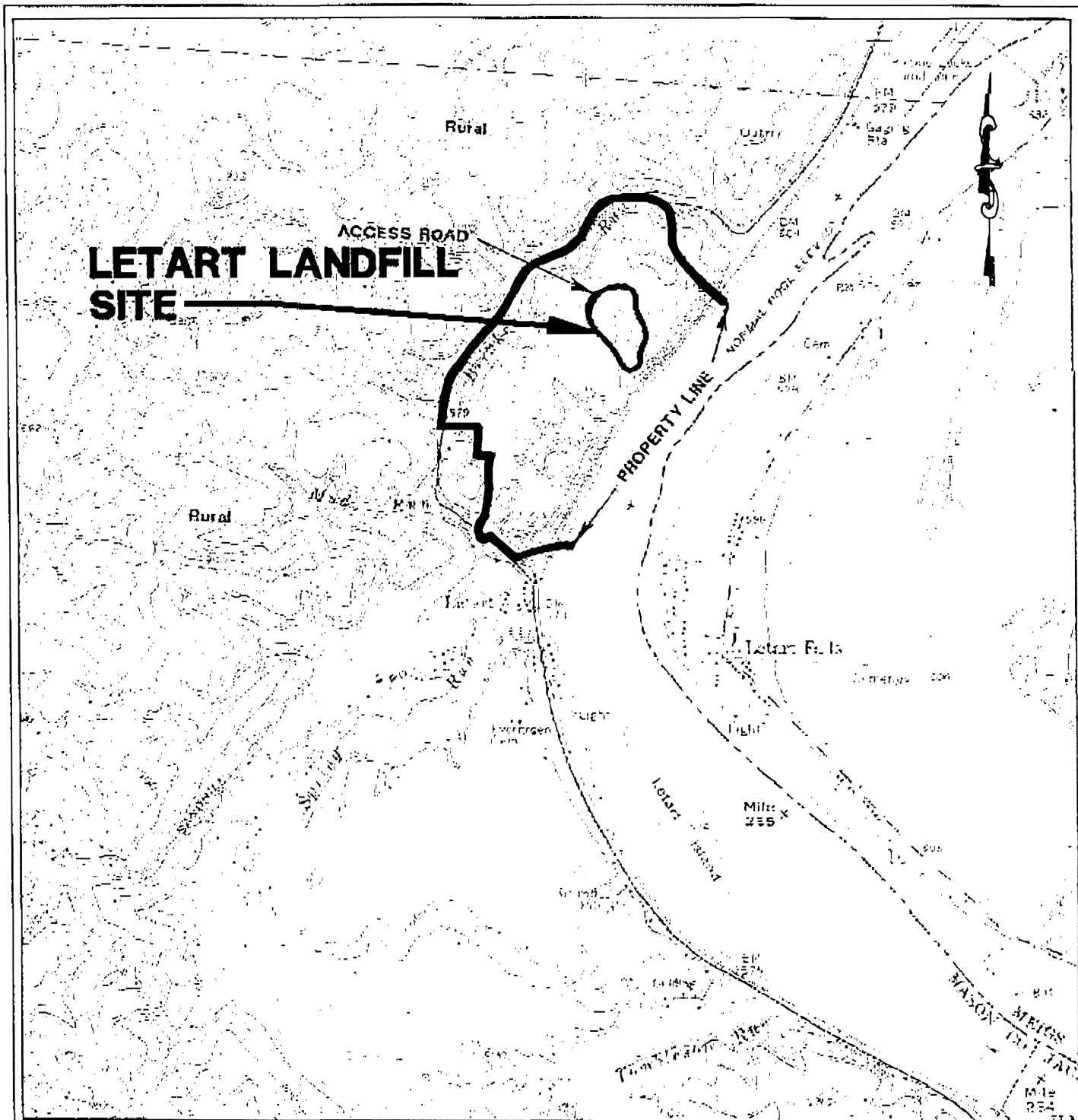
**EXHIBIT 1**

# **SITE LOCATION MAP**

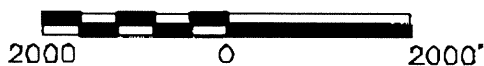
DuPont Washington Works  
Washington, West Virginia

DATE	REVISED	DATE	DATE
8/27/01	8/27/01	8/27/01	8/27/01
1.0	1.0	1.0	1.0





SCALE



**Corporate Remediation Group**

*An Alliance between  
DuPont and The W-C Plasmach Group*



## SITE LOCATION MAP

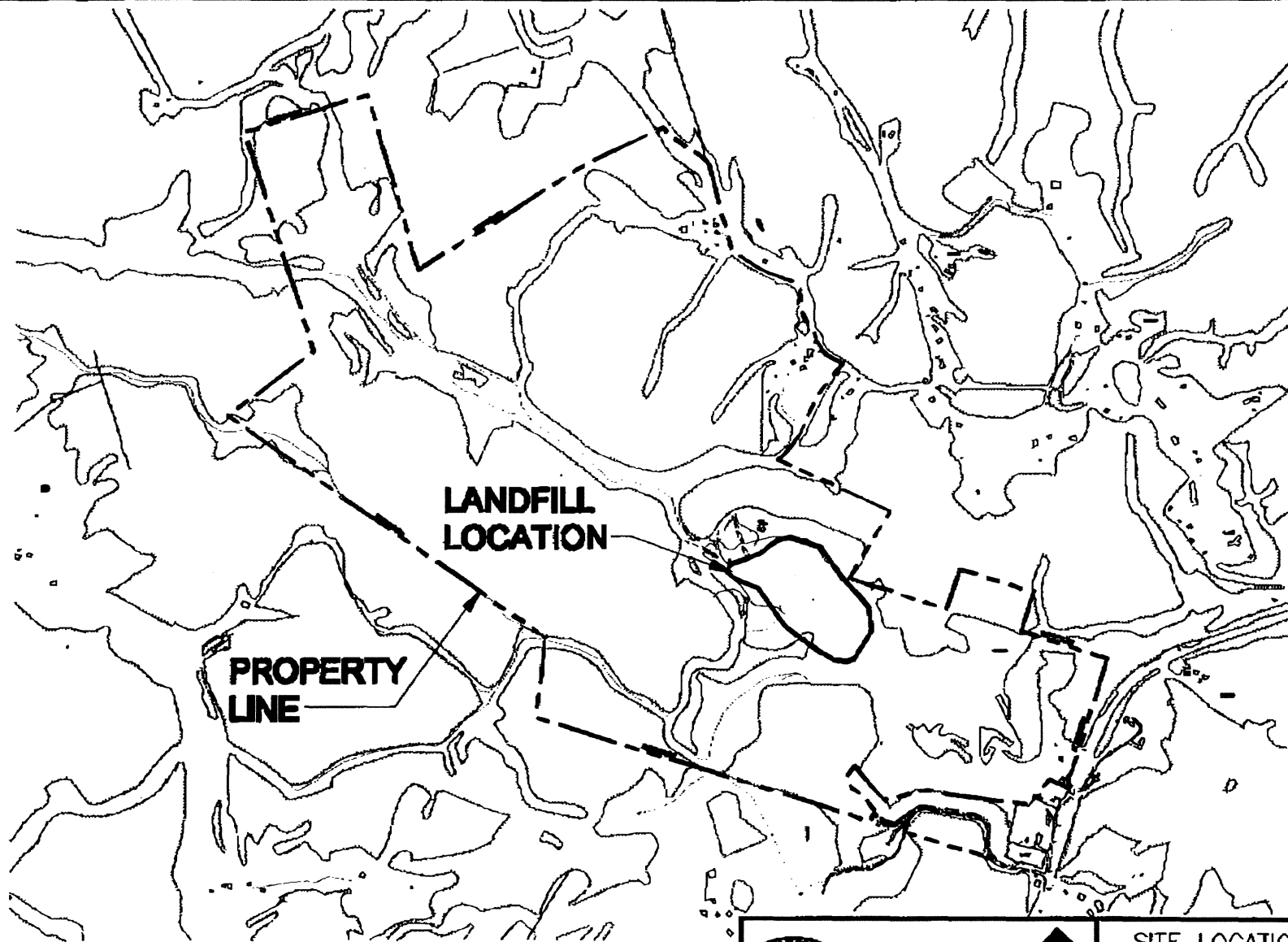
Letart Landfill Site  
Parkerburg, WV

SCALE	DESIGNED	DATE	APPROVED	DATE
As shown	TEL	12/21/9	OKL	7/25/00
	OKL		OKL	
	OKL		OKL	

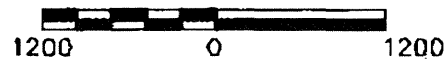
SOURCE: NEW HAVEN, WV-DHD QUADRANG

EXHIBIT 2

EXHIBIT 3



SCALE



**Corporate Remediation Group**

*An Alliance between  
DuPont andURS Diamond*

Barley Mill Place, Building 27  
Wilmington, Delaware 19805

**SITE LOCATION MAP**

Dry Run Landfill  
Wood County, West Virginia

SCALE	PROJECT	DATE	REV.	DATE NO.
As shown	10/00/01	10/01/01	1	10/01/01